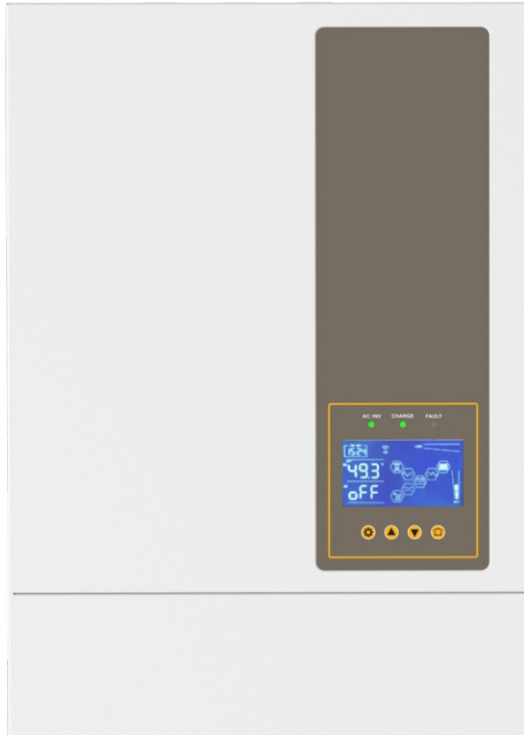


Hybrid Inverter



SUNT-4.0kW-H

User Manual

4.0kW SUNTCN HYBRID INVERTER

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1. Technical Parameters

	SUNT-4.0kW-H
Battery Input Parameters	
Supported battery type	Li-Ion or Lead-acid
Nominal battery voltage (V)	48
Battery input voltage range(V)	40~60
Max. charge voltage (V)	≤ 60 (Configurable)
Max. charge current (A)	60 (Configurable)
Max. discharge current (A)	80 (Configurable)
Battery capacity(Ah)(Recommend)	70~1000
Charge for Li-Ion battery pack	Communicating with BMS of the battery pack
PV String Input Parameters	
Max. DC input power (W)	4500
Max. DC input voltage (V)	500
MPPT voltage range (V)	120~450
Start-up voltage (V)	150
Max. input current (A)	15
AC Output Parameters (Back-Up) (Feed to essential load)	
Max. output power (W)	4000
Max. output apparent power (VA)	4000
Peak output apparent power (VA)	8000
Max. output current (A)	18
Nominal output voltage (Vac)	220/230/240 (Configurable) single phase
Nominal output frequency (Hz)	50/60(+/-0.2%) (Configurable)
Max. Bypass Current(A)	40
Shift Time(Bypass and inverter)(ms)	10
Output THD (Resistor load)	< 3%
AC input parameters (On-grid) (Bypass to essential load & Charge the battery/ Feed to home load)	
Max. input power (W)	4000
Bypass to essential load & Charge the battery	
Max.output power (W)	4000
Feed to home load	
Max.apparent input power (VA)	4000
Bypass to essential load & Charge the battery	
Max.apparent output power (VA)	4000
Feed to home load	
Nominal input/output voltage (Vac)	220/230/240(Auto adjusted to fit home grid) single phase
Nominal input/output frequency (Hz)	50/60(Auto adjusted to fit home grid)
Max. bypass current(A)	40
Shift time(Bypass and inverter)(ms)	10
Efficiency	
Max. Efficiency	97.6%
Max. Battery to Load Efficiency	94.0%
Europe Efficiency	97.0%
MPPT Efficiency	99.9%
Protection	
Battery over charge protection	Integrated
Battery low voltage protection	Integrated
Over temperature protection	Integrated
Output over load protection	Integrated
Output short circuit protection	Integrated

	SUNT-4.0kW-H
Output over voltage protection	Integrated
Certifications & Standards	
Grid regulation	VDE-AR-N4105, UNE217001,G100
Safety regulation	IEC/EN62109-1/2
EMC	IEC/EN61000-6-1/3
Ingress Protection	IP20
Operating Temperature range(°C)	-25~60

2.Safety Instructions



WARNING!

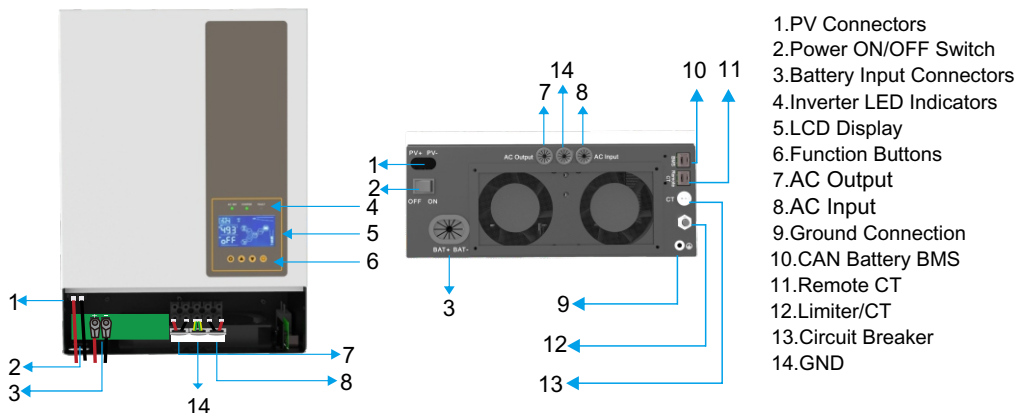
Life-Threatening Risks DUE TO FIRE OR ELECTROCUTION
The SUNT Hybrid Inverter can only be installed by a qualified licensed electrical contractor.This is not a DIY product

- Be sure to read this manual thoroughly before installation.
- Do not attempt to install the inverter by yourself.Installation work must be performed following national wiring standards by authorized personnel only. Do not turn on the power until all the installation work is completed.
- Always use an individual power supply line protected by a circuit breaker and operating on all wires with a distance between contacts of at least 3mm for this unit.
- The unit must be correctly grounded and the supply line must be equipped with a suitable breaker and RCD for the protection of the operator.
- The unit is not explosion-proof,do not install the product in an explosive atmosphere.
- Never touch electrical components immediately after the power supply has been turned off, since the system can still have residual energy, which may cause electric shock. Therefore after turning off the power,always wait for at least 5 minutes before touching electrical components.
- This unit contains no user-serviceable parts.Always consult an authorized contractor for repairs.

3. System Overview

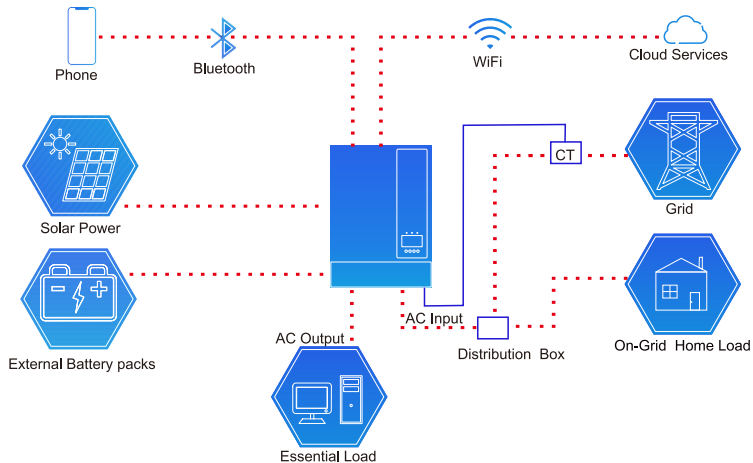
3.1 Product Overview

The SUNT Hybrid Inverter is a highly efficient power management equipment that allows the user to hit those 'parity' targets by managing power flow from multiple sources such as solar ,main electrical grid,generator,and effectively storing and releasing electric power to meet the demand of utility usage.



3.2 Basic System Architecture

The following illustration shows the basic application for this inverter/charger. It also includes the following devices to have a complete running system:



3.3 Interactive

- Easy and simple to understand display.
- Supporting Wi-Fi and Bluetooth.
- Visual power flow screen.
- Built-in MPPT Charger and AC Charger.
- Smart settable 3-stage charging for optimized battery performance.

3.4 Compatible

- Compatible with main electrical grid voltages or power generators.
- On-grid, and off-grid pure sine wave inverter.
- Auto restart while AC is recovering.

3.5 Configurable

- Fully programmable controller.
- Programmable multiple operation modes: LIMIT function mode (Economic mode) No limit function mode (UPS mode).
- Configurable battery charge/discharge current and voltage based on applications.
- Charger and discharge work time control.

3.6 Secure

- Overload/over-temperature/short-circuit protection.
- Smart battery charger design for optimized battery protection /Battery over charge and discharge protection.
- Limiting function installed to prevent excess power overflow to grid ("Zero export").

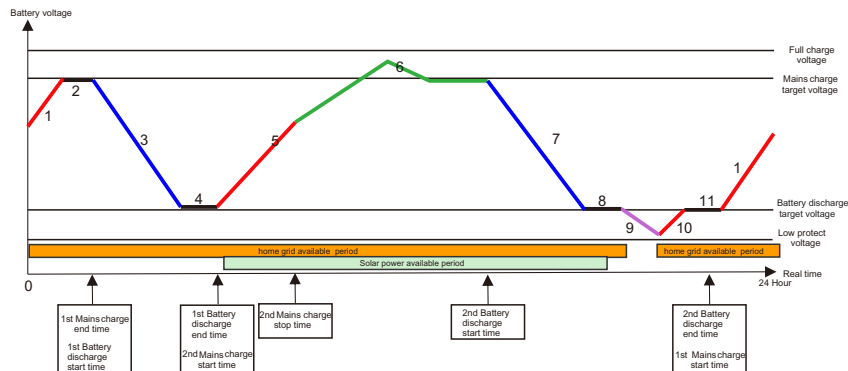
3.7 Applications

- Marine (vessel power management) .
- Power shedding (home/office/factory) .
- UPS (Uninterrupted Power Supply) .
- Remote locations with solar and wind generators .
- Building sites .
- Military locations .
- Telecommunication .

3.8 Work Mode Explanation:

3.8.1 Limit Function Mode(Economic Mode)

(Using peak cutting and valley filling to save money)



According to the time coordinate, in the time period from “xx mains charge start time” to “xx mains charge end time”, mains will charge the battery pack until the battery voltage reaches to “ mains charge target voltage”. This time period should be in low electric price time.

From “xx battery discharge start time” to “xx battery discharge end time”, the inverter will feed power to home load and the load connected to the AC output, the limit function

should be available in this time period to limit the feed power never exceeds the total loads (after CT), to keep “Zero export”. This time period should be in high electric price time.

The MPPT solar charger will work at all time when the solar energy is available, in the “Solar power available period”, the solar energy will charge the battery pack in “mains charge” period and will feed power to home grid in “the battery discharge” period. If the battery voltage is higher than the “ main charge target voltage”, then the solar energy will feed power to home grid arbitrarily, but the limit function will still be available. If the solar power is higher than the home load, the extra solar power will charge the battery pack too.

About the voltage of the battery pack:

Section “1”, “5” : Mains charge section. In these sections, the battery pack voltage will increase until reaches to “mains charge target voltage”.

Section “10”, Mains charge section. If the battery voltage is lower than the “battery discharge target voltage” after U P S function, it will be charged to “battery discharge target voltage” arbitrarily. Section “2”, “4”, “8” and “11” : Keeping voltage section. Section “6”: Solar energy feeds power to home grid and charges the battery pack. Section “3” and “7”: “battery discharge” section. In these sections, the battery pack voltage will decrease until reaches to “battery discharge target voltage”.

Section “9”: U P S function enabled section.

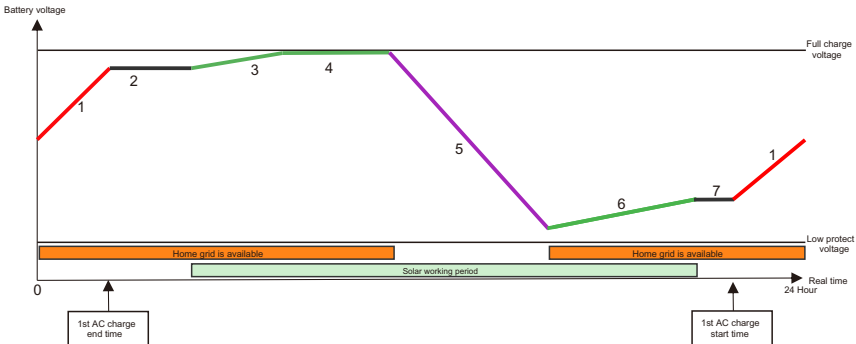
The battery pack volume from “battery discharge target voltage” to “Low protect voltage” is for essential loads like Computers, or refrigerators that the AC power can’t be interrupted when the home grid is not available. If you have no essential loads, then you can set the “battery discharge target voltage” near to “Low protect voltage” to get more usable battery volume for charge and discharge.

If you want to keep more battery volume for essential loads when the home grid is not available, you can set the “battery discharge target voltage” much higher.

When the home grid is available, the AC output terminal is bypassed and connected to the home grid.

3.8.2 NO Limit Function Mode(UPS Mode)

In this work mode, the inverter can only be discharged via AC output, and can’t feed the home grid, Under UPS, the inverter is only capable of powering essential loads that are connected with the AC output terminal .



According to the time coordinate, in the time period from “xx mains charge start time” to “xx mains charge end time”, the home grid will charge the battery pack until the battery pack is fully charged, you also can set the 2nd mains charge time period, if you want to save electric charge money, the time periods should be in low electric price time. The MPPT solar charger will work all time when the solar energy is available, in the “Solar power available period”, the solar energy will charge the battery pack, If the battery pack is full, then the solar energy will power the essential loads connected with AC output terminal.

About the voltage of the battery pack:

Section “1”: Mains charge section.

Section “2” and “7”: keeping voltage section.

Section “3” and “6”: The battery pack is charged by solar energy.

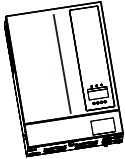

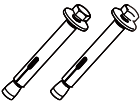
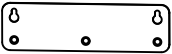



Section “4”: Extra solar energy powers the essential loads.

Section “5”: UPS function enabled section, the essential loads are powered by AC output.

When the home grid is available, the AC output terminal is bypassed and connected to the home grid.

4.Installation

4.1 Parts List

							
SUNT HYBRID INVERTER	1pcs	Screws M5X10	3pcs	Expansion bolts M6X60	2pcs	Wall mounting bracket	1pcs
							
Current transformer ID	1pcs	User manual	1pcs	Dust cover	2pcs		

4.2 DO not install the inverter in the following areas:

- Areas with high salt content, like the marine environment, will deteriorate metal parts, causing the parts to fail or the unit to leak water.
- Areas filled with mineral oil or containing a large amount of splashed oil or steam, such as a kitchen. It will deteriorate plastic parts, causing the parts to fail or the unit to leak water.
- Areas that generate substances that adversely affect the equipment, such as sulfuric gas, chlorine gas, acid, or alkali. It will cause the copper pipes and brazed joints to corrode, which can cause refrigerant leakage.
- Areas that can cause combustible gas to leak, contain suspended carbon-fiber or flammable dust, or volatile inflammable such as paint thinner or gasoline.
- Areas where there may be gas leaks and settle around the unit. It can cause fires.
- Areas where animals may urinate on the unit or ammonia may be generated.
- High altitude areas, 4000 meters above sea level.
- Environments where precipitation or humidity are above 95%.
- Areas where the air circulation is too low.

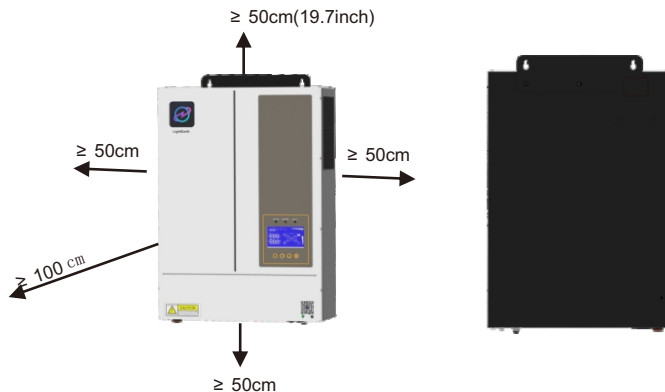
Please be advised:

- Install the indoor unit, outdoor unit, power supply cable, transmission cable, and remote control cable at least 1 meter (3.3 feet) away from a television or radio receivers. This will prevent TV reception interference or radio noise. Even if they are installed more than 1m apart, it is still possible to receive noise under some signal conditions.

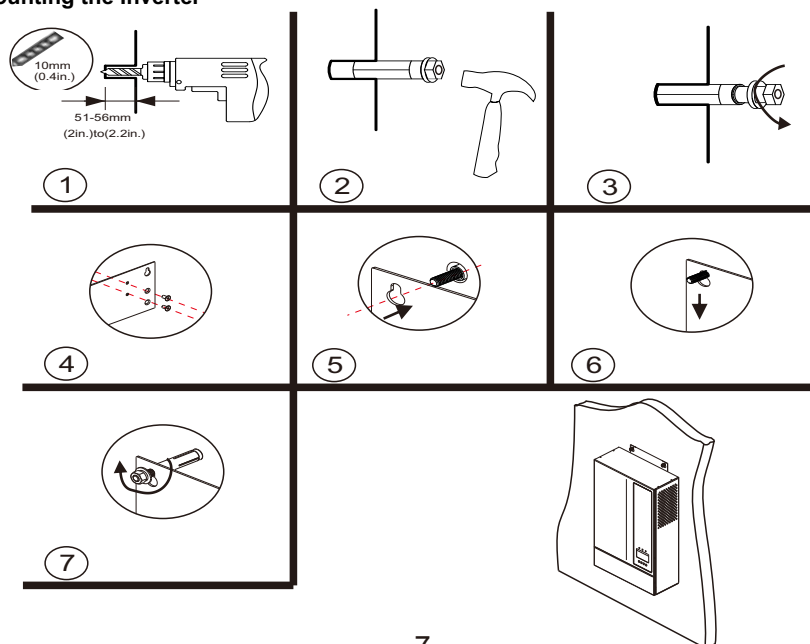
- If children under 10 years old may approach the unit, take Precautions against the children from reaching the unit.
- Install the indoor unit on the wall at a height of 160 cm (5.3feet) from the floor.

4.3 Considering the following points before selecting where to install:

- Please select a vertical wall with load-bearing capacity for installation, Concrete or other non-flammable surfaces, Installations steps are shown below.
- Install this inverter at eye level in order to allow the LCD display to be read at all times.
- For proper air circulation to dissipate heat, allow a clearance of approx 50cm(19.7inch) to the side and approx 50cm above and below the unit ,and 100cm to the front.



4.4 Mounting the Inverter



4.5 Cables Selection

There are four essential cables needed to set up the system, which are listed below

PV Cable(connect solar panels and inverter)

Battery Cable(connect battery and inverter)

AC output Cable(connect backup load and inverter)

AC input Cable(connect utility power and inverter)

4.5.1 PV string and cable selection:

Before you connect the solar panels to the inverter, a suitable specification of cables should be selected. The selection of cables specifications is according to the total power and the connecting method of solar panels. You should calculate the maximum current that will transit through the cables, we mark it as I_{max} . First, calculate the total P_{max} of the solar panels that will be connected to the inverter, we mark it as TP_{max} , then calculate the total V_{oc} of them, we mark it as TV_{oc} . Because same model PVs will be connected in series mostly, so:

- 1) $I_{max}=I_{mp}$.
- 2) $TP_{max}=N*P_{max}$.
- 3) $TV_{oc}=N*V_{oc}$.

TV_{oc} should be $>150V$ and $<500V$. $150V$ is the min.PV string voltage that will reach at the installation side(according to the max.Temperature) and $500V$ is the max.PV string voltage that will reach at the installation side(according to the min.Temperature).

Example of determining the sizing of the PV cable is conducted under the assumption of using 10 of 400W solar panels,with $P_{max}=400W$; $V_{oc}=41.2V$; $V_{mp}=34.2V$; $I_{mp}=11.7A$.

Series Connection :

- 1) $I_{max}=I_{mp}=11.7A$.
- 2) $TP_{max}=10*400W=4000W$.
- 3) $TV_{oc}=10*41.2V=412V$.

Hence, based on $I_{max} = 11.7A$, refer to American Wire Gauge Chart, Max current column. The corresponding cable should be 11AWG (refer to American Wire Gauge Chart(on the next page), Max current column)

Here are some suggestions for each of the cable listed. However,each individual system will need to do some calculations in order to find the optimal cable based on the circumstances described in the examples above.

4.5.2 PV Cable

Model	Wire Size	Max Current(A)	Cable(mm^2)
4.0kW	11AWG	15	4.17

4.5.3 Battery Cable

Model	Wire Size	Max Current(A)	Cable(mm^2)
4.0kW	3AWG	80	26.7

4.5.4 AC output Cable&AC input Cable

Model	Wire Size	Max Current(A)	Cable(mm^2)
4.0kW	10AWG	15	5.26

Table: American Wire Gauge (AWG) Cables/ Conductor Sizes and Properties

AWG	Diameter [inches]	Diameter [mm]	Area [mm ²]	Resistance [Ohms /1000 ft]	Resistance [Ohms/ km]	Max Current [Amperes]	Max Frequency for 100% skin depth
0 (1/0)	0.3249	8.25246	53.5	0.0983	0.322424	150	250 Hz
1	0.2893	7.34822	42.4	0.1239	0.406392	119	325 Hz
2	0.2576	6.54304	33.6	0.1563	0.512664	94	410 Hz
3	0.2294	5.82676	26.7	0.197	0.64616	75	500 Hz
4	0.2043	5.18922	21.2	0.2485	0.81508	60	650 Hz
5	0.1819	4.62026	16.8	0.3133	1.027624	47	810 Hz
6	0.162	4.1148	13.3	0.3951	1.295928	37	1100 Hz
7	0.1443	3.66522	10.5	0.4982	1.634096	30	1300 Hz
8	0.1285	3.2639	8.37	0.6282	2.060496	24	1650 Hz
9	0.1144	2.90576	6.63	0.7921	2.598088	19	2050 Hz
10	0.1019	2.58826	5.26	0.9989	3.276392	15	2600 Hz
11	0.0907	2.30378	4.17	1.26	4.1328	12	3200 Hz
12	0.0808	2.05232	3.31	1.588	5.20864	9.3	4150 Hz
13	0.072	1.8288	2.62	2.003	6.56984	7.4	5300 Hz
14	0.0641	1.62814	2.08	2.525	8.282	5.9	6700 Hz
15	0.0571	1.45034	1.65	3.184	10.44352	4.7	8250 Hz
16	0.0508	1.29032	1.31	4.016	13.17248	3.7	11 k Hz
17	0.0453	1.15062	1.04	5.064	16.60992	2.9	13 k Hz
18	0.0403	1.02362	0.823	6.385	20.9428	2.3	17 kHz
19	0.0359	0.91186	0.653	8.051	26.40728	1.8	21 kHz
20	0.032	0.8128	0.518	10.15	33.292	1.5	27 kHz
21	0.0285	0.7239	0.41	12.8	41.984	1.2	33 kHz
22	0.0254	0.64516	0.326	16.14	52.9392	0.92	42 kHz
23	0.0226	0.57404	0.258	20.36	66.7808	0.729	53 kHz
24	0.0201	0.51054	0.205	25.67	84.1976	0.577	68 kHz
25	0.0179	0.45466	0.162	32.37	106.1736	0.457	85 kHz
26	0.0159	0.40386	0.129	40.81	133.8568	0.361	107 kHz
27	0.0142	0.36068	0.102	51.47	168.8216	0.288	130 kHz
28	0.0126	0.32004	0.081	64.9	212.872	0.226	170 kHz
29	0.0113	0.28702	0.0642	81.83	268.4024	0.182	210 kHz
30	0.01	0.254	0.0509	103.2	338.496	0.142	270 kHz
31	0.0089	0.22606	0.0404	130.1	426.728	0.113	340 kHz
32	0.008	0.2032	0.032	164.1	538.248	0.091	430 kHz
33	0.0071	0.18034	0.0254	206.9	678.632	0.072	540 kHz
34	0.0063	0.16002	0.0201	260.9	855.752	0.056	690 kHz
35	0.0056	0.14224	0.016	329	1079.12	0.044	870 kHz
36	0.005	0.127	0.0127	414.8	1360	0.035	1100 kHz
37	0.0045	0.1143	0.01	523.1	1715	0.0289	1350 kHz
38	0.004	0.1016	0.00797	659.6	2163	0.0228	1750 kHz
39	0.0035	0.0889	0.00632	831.8	2728	0.0175	2250 kHz
40	0.0031	0.07874	0.00501	1049	3440	0.0137	2900 kHz

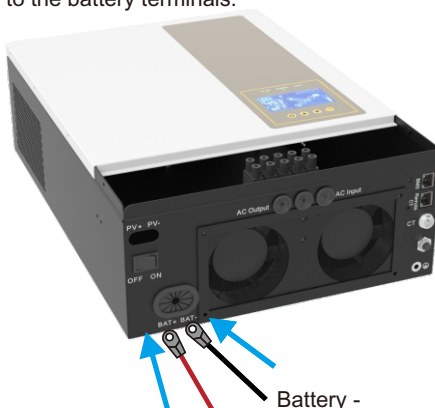


Note: Before connecting all wires, please take off the bottom cover by removing two screws as shown below.



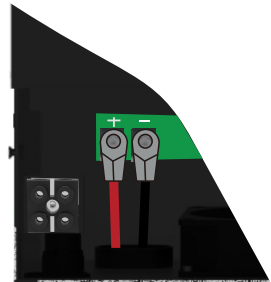
4.6 Connecting the Batteries

Insert the terminal of the battery cable flatly into the battery connector of the inverter and make sure the bolts are tightened with a torque of 2-3Nm, Please make sure polarity at both the battery and the inverter/charge is correctly connected and terminals are tightly screwed to the battery terminals.



Battery +

Battery -

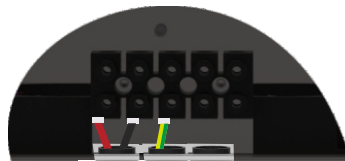


4.7 Connecting the AC



WARNING!

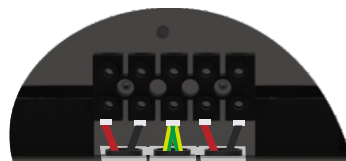
All wiring and cable sizing must follow the wiring regulations and code of practices of whichever country you live in .
There are two terminal blocks with "AC Input", "AC Output", markings, Please **DO NOT** mix-connect input and output connectors.
Be sure to connect AC wires with the correct polarity.



AC Output



GND(PE)



GND(PE)



AC Input

- Before making AC input/output connection, be sure to disconnect the utility grid first.
- Remove insulation sleeve 10mm(0.4inch) for the six conductors.
- Insert AC input wires according to polarities indicated on terminal block and tighten the terminal screws. Be sure to connect PE protective conductor first.
- Make sure the wires are securely connected.

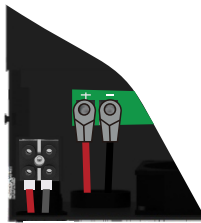
4.8 Connecting the PV



WARNING!

All wiring must be performed by a qualified personnel.
It's very important for system safety and efficient operation to use appropriate cable for PV module connection.

To avoid any malfunction, do not connect any PV modules with possible current leakage to the inverter. For example, grounded PV modules will cause current leakage to the inverter. When using PV modules, please be sure NO grounding. It is Required to use PV junction box with surge protection. Otherwise, it will cause damage on the inverter when lightning occurs on PV modules.



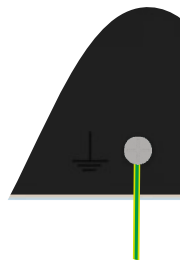
- Insert PV wires according to polarities indicated on the terminal block and tighten the terminal screws. Be sure to connect PE protective conductor first.
- Make sure the wires are securely connected.

4.9 Connecting the Ground



WARNING!

All wiring must be performed by a qualified personnel.
It's very important for system safety and efficient operation to use appropriate cable for the Ground connection.



4.10 Installing the CT Coil to get LIMIT function

The CT coil is one of the most important parts of the SUNT inverter. This device reduces the power of the inverter to prevent feeding power to the grid. This feature is also known as "Zero Export".

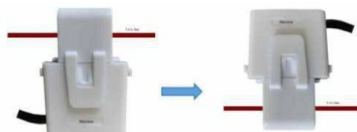
- Fit the coil (sensor) around the live cable on the main fuse feeding the building and run the cable back to the inverter. This cable can be extended up to an extra 10m using a similar cable.
- Connect the other end of the CT coil into the inverter terminals marked as CT coil.

IMPORTANT

If the CT coil is clamped to the live cable in the wrong way then this CT power will have negative values instead of positive values when the power is flowing into the house/inverter. Also, the inverter export limiting function will not work properly.



CT







5. Operation

5.1 Switching On

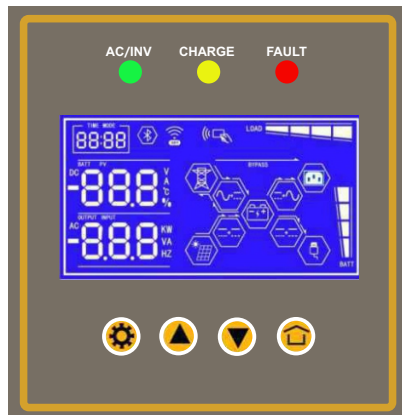
Once the SUNT hybrid inverter has been fixed into a suitable location, solar panels wired, batteries connected, and AC wired to a fuse board or power block, it is time to turn on the device.

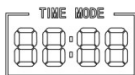
5.2 Buttons

There are four buttons on the panel, Configuration , Up , Down  and Home , from left to right.

5.3 LCD Screen

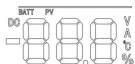
LCD screen can display the relevant information about the operation of the machine, and display the Settings of the machine.





5.3.1

This area displays the real-time and the number of settings displayed during the setting process.



5.3.2

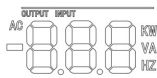
This area displays information about the batteries and solar modules connected to the unit as well as the Thermometer reading inside the unit.

Include:

- 1.The working voltage and current of the solar module;
- 2.Battery operating voltage, capacity, charging current, discharge current;
3. Internal temperature of the machine.

Operation to change display contents:

The display content of this part can be switched by pressing the two buttons and on the left.



5.3.3


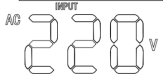
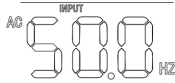
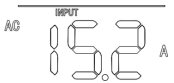
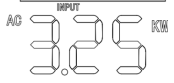
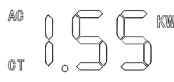
This area displays information about ac input and output while the machine is working.

Includes:

- 1.AC output voltage of the inverter;
- 2.AC output current of the inverter;
- 3.AC output power(KW) of the inverter;
- 4.AC output power(KVA) of the inverter;
- 5.AC input(home grid or generator) voltage;
- 6.AC input(home grid or generator) current;
- 7.AC input(home grid or generator) power;
- 8.AC input(home grid or generator) frequency ;

The display content of this part can be switched by pressing the two buttons and on the left.

LCD Display	Function	LCD Display	Function
	Battery voltage		AC output voltage (Inverter)
	Battery charge /discharge current Positive number is discharge current, negative number is charge current		AC output current (Inverter)
	PV voltage		AC output power(KW) (Inverter)
	PV current		AC output power(KVA) (Inverter)

LCD Display	Function	LCD Display	Function
	Internal temperature		AC input voltage (Grid or Gen.)
	AC input frequency		AC input current negative number is current feeding to home grid.
			AC input power(KW) negative number is power feeding to home grid.
			CT detected power (KW)

5.3.4



This area displays the total power of the load. The greater the load power, the more the number of bars displayed, and vice versa.



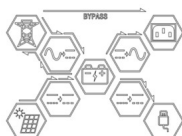
5.3.5 This area displays the battery capacity. The larger the battery capacity, the more bars are displayed, and vice versa.

5.3.6

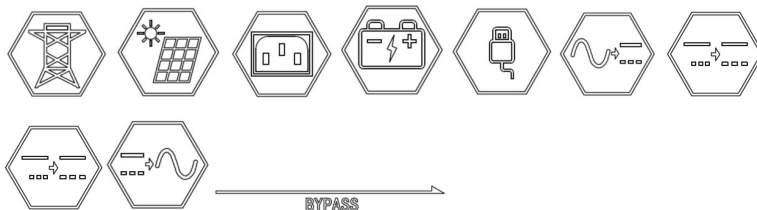


This area shows whether the machine is connected to Bluetooth, WiFi, and whether it has PayGo function. Each model of the machine displays different contents in this part. Display icon, that there is a corresponding function, otherwise do not display.

5.3.7



This area shows the operating status of the machine. The corresponding arrows indicate the direction of energy flow. When the corresponding arrow flashes, it means that the energy in this part is flowing in the direction of the arrow.



The ICONS above from left to right represent:




















1)Utility grid, 2)connected solar module, 3)AC output, 4)Batteries connected, 5)DC load, 6)The internal AC charging module of the machine, that is, charging the battery through the power grid. 7)The DC-DC module, connected to the solar module, represents the MPPT charging module inside the machine. 8)The DC-DC module adjacent to the DC load is the DC output module inside the machine.(Note: This feature is customizable, not standard.) 9)Represents the internal inverter module of the machine, which converts the input DC into ac output. 10) the AC bypass module.

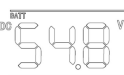




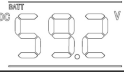
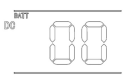


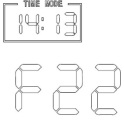





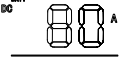




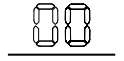
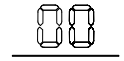
Machine function and parameter setting:



When you press for about 3 seconds, It will enter the configuration interface, you can build all configurations by using these four buttons. Short press , you can select the configuration page that you want to set up. Short press , you can select the number that you want to change on the same page. Short press and , you can change the content that you selected. Press longer than 2S, then the configuration page will return back to the previous page. When you finish the configurations, then you can press for about 3 seconds to quit, or you just stop pressing any button, then the configuration procedure will quit automatically in about 10 seconds.

There are many configurations that you can set up:

Function	Descriptions	Options	Factory default setting
F01 	Backlight setting	00:The backlight will automatically turn off after 30 seconds 01:The backlight is always on	01
F02 	Alarm sound setting	00:Turn on the sound alarm 01:The sound is automatically turned off after 30 seconds 02:The sound is always going on	01
F03 	Multiple Work Mode	00: Standalone mode 01: Single phase host mode 02: Split-phase host mode 03: Three-phase host mode 04: Slave mode	00
F04 	Multiple Work Mode Address		01
F05 	Overload protection restarts setting	00:Disable 01:Enable	01

Function	Descriptions	Options	Factory default setting
F06 	Over temperature protection restarts setting *2	00:Disable 01:Enable	01
F07 	Battery type setting	00:User 01:Battery pack	00
F08 	Battery capacity setting(AH)	Short press  button,number plus1,long press  button,quick continuous plus, short press  button,number miuns1,long press  button,quick continuous minus.	100
F09 	Work mode setting	00:No limit function mode(UPS mode) 01: Limit function mode(Economic mode)	00
F10 	AC coupling	00:Disable 01: Enable	00
F11 	Grid Type	00: 220V 01: 230V 02: 240V	01
F12 	Frequency setting	00: 50Hz 01: 60Hz	00
F13 	Battery low voltage protection setting	Short press  button,number plus1,long press  button,quick continuous plus, short press  button,number miuns1,long press  button,quick continuous minus.	45.0
F14 	Max. discharge current (to loads) setting (If there is PV power available, the battery discharge current will be smaller than this setting value)		50(3.6KW)/70(5.5KW)
F15 	Recovery voltage setting		50.0
F16 	Boost charge voltage setting		56.0

Function	Descriptions	Options	Factory default setting
F17 	Float charge voltage setting	Short press  button, number plus 1, long press  button, quick continuous plus, short press  button, number minus 1, long press  button, quick continuous minus.	56.0
F18 	Equalize charge voltage setting		57.0
F19 	Equalize charge time setting (minutes)		60
F20 	Equalize charge interval time setting(Days)		90
F21 	Maximum charge current setting		30(3.6KW)/50(5.5KW)
F22 	Real-time setting	Short press  button to switch between minutes and hours . short press  button, number plus 1, long press  button, quick continuous plus, short press  button, number minus 1, long press  button, quick continuous minus.	
F23 	Max. discharge homeload current (The battery discharges to the loads)	Short press  button, number plus 1, long press  button, quick continuous plus, short press  button, number minus 1, long press  button, quick continuous minus.	80(3.6KW)/120(5.5KW)
F24 	Charge From AC	00: Disable 01: Enable	00
F25 	Voltage/SOC	00: Voltage 01: SOC	00

Function	Descriptions	Options	Factory default setting
F26 	Cut OFF SOC	0,100	25%
F27 	Recover SOC	0,100	25%

Remarks:

*1, If overload protection restart is set to Enable mode, the AC output will be automatically restored in 5 minutes after the device enters overload protection. If it is set to Disable, the system Will not restart.

*2, If overtemperature protection restart Setting is set to Enable mode, when the device is in overtemperature protection mode, the AC output automatically recovers after the device cools down to normal temperature. If it is set to Disable, the system Will not restart.

6.Fault Code

Error code	Description	Solutions
E14	When off grid usage , the battery discharge current has exceeded the "maximum discharge current" set in the battery settings page	1.Disconnect some AC loads from AC output. 2. Set the the "maximum discharge current" setting much higher in the battery settings page if it is possible.
E15	AC output has short-circuited or has been connected with very big load.	1. Check the AC output. 2.Don't connect too big load to AC output.
E16	AC over current fault of hardware	1.Please check whether the backup load power is within the range or not; 2.Restart and check whether it is in Normal state; 3.Seek help from us, If it can not go back to normal state
E20	DC over current fault of the hardware	1.Check PV module connect and battery connect; 2.Turn off the DC switch and AC switch and then wait one minute,then turn on the DC/AC switch again; 3.Seek help from us, If it can not go back to normal state.
E35	AC_OVER_LOAD	Check the connected AC loads, if total loads power is higher than rated power, reduce the loads
E60	Heat sink high temperature failure	Heat sink temperature is too high 1.Check whether the work environment temperature is too high; 2. Turn o ffthe inverter for 10mins and restart; 3.Seek help from us, If it can not go back to normal state.
E61	DC busbar voltage is too high	Check the battery voltage If too many PCS battery packs were connected in series, you need to remove some of them.

E62	DC busbar voltage is too low	Check the battery voltage 1.If the battery voltage is too low, using PV or grid to charge the battery; 2.If too few battery packs were connected in series, you need to add some battery packs.
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Maintenance of the System

The inverter is low maintenance, however, It is important to clean all the cooling fans and air ducts to maintain a dust free condition. Check if there are no fault codes and Lithium battery communication is Stable. Weekly cleaning statement: Suggest micromesh filters as an available option. Micro ants here are a real problem.

7.Weight and Dimension of the Hybrid Inverter

Model	SUNT-4.0kW-H
Net Weight	9.5Kg
Gross Weight	11Kg
Product Size	430x307x133(mm)
Packing Size	520x420x220(mm)

8.More Support

For APP operation and more support, please scan the QR code below or enter the website below for operation.

